

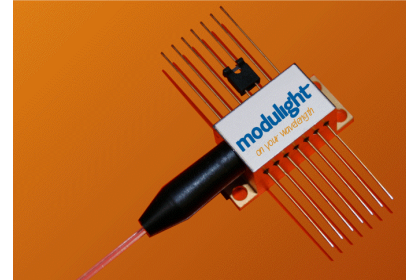
Butterfly Module

14-pin butterfly packaged high-power laser module 635...1550 nm

Overview

The 14-pin butterfly package laser diode series offers compact means of utilizing the performance of Modulight single emitter chips.

The package withholds an internal TEC and photodiode. Standard configuration includes a 200 μm core fiber and an SMA-905 connector. Other connector and fiber types are available on request.



Applications

Defense	Industrial	Medical
Illumination Sensing	Optical pumping Measurement and analysis	Therapeutic procedures Diagnostics Aesthetic treatments

Electro-optical Characteristics, Typical Values

Parameter	Symbol	ML1862	ML1982	ML1523	ML1859	ML2017	ML1856	Unit
Wavelength	λ	635	650	680	808	1470	1550	nm
Optical Output Power	P_{OPT}	400	750	750	2000	700	500	mW
Operating Current	I_{OP}	1.1	1.8	1.3	2.5	2.8	3.2	A
Operating Voltage	V_{OP}	2.3	2.3	2.0	2.0	1.4	1.3	V
Threshold Current	I_{TH}	600	650	600	400	250	550	mA

All the above values are typical for CW operation @ 20°C.

Fiber Pigtail Characteristics

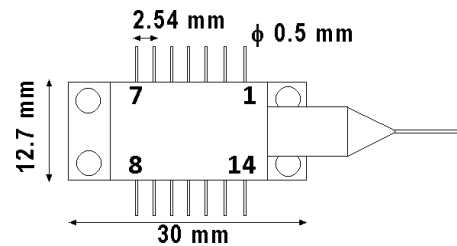
Parameter	Symbol	Typical Value	Unit
Core Diameter	\varnothing_{CORE}	200	μm
Cladding Diameter	\varnothing_{CLAD}	220	μm
Coating Diameter	\varnothing_{COAT}	~500	μm
Fiber Numerical Aperture	NA	0.22	-
Minimum Bending Radius (short-term)	R_{MIN1}	22	mm
Minimum Bending Radius (long-term)	R_{MIN2}	44	mm
Fiber Core Material		Pure silica	
Fiber Cladding Material		Fluorine doped silica	
Fiber Length	L	1	m
Connector at the fiber end		SMA-905	

Absolute Maximum Ratings

Parameter	Symbol	ML1862	ML1982	ML1523	ML1859	ML2017	ML1856	Unit
LD Reverse Voltage	V_{RLD}	0	0	0	1.5	0	0	V
LD Forward Current	I_{FLD}	1.2	2.0	1.9	2.8	3.3	3.5	A
Ambient Temperature	T_{AMB}	30	30	30	30	30	30	°C
Storage Temperature	T_{STG}	-20...50	-20...50	-20...50	-20...50	-20...50	-20...50	°C

Package Information

The butterfly module has a small footprint (30.0 × 12.7 mm) and many integrating options. The butterfly modules can be customized to accommodate special pin arrangements per request, and can be optionally equipped with simple output connector on a PCB. The butterfly laser module is offered as a thermoelectrically cooled version with an integrated photodiode and a thermistor.



Pin assignment

PIN #	Function	PIN #	Function
1	TEC ₊	8	N/A
2	Thermistor	9	N/A
3	PD ₊	10	LD ₊
4	PD ₋	11	LD ₋
5	Thermistor	12	N/A
6	N/A	13	Case
7	N/A	14	TEC ₋

Typical thermistor and TEC properties

Parameter	Symbol	Value	Unit
Thermistor resistance	R _T	10 or 12	kΩ
Thermistor temperature coeff.	β _T	3400 ±5%	-
TEC current, typical	I _{TEC, typ}	0.5...1.5	A
TEC current, maximum	I _{TEC, max}	2.2	A
TEC voltage, typical	V _{TEC, typ}	2.0...6.0	V
TEC voltage, maximum	V _{TEC, max}	8.7	V

Safety Information

- The laser light emitted from this laser device may be visible or invisible, depending on the laser selected. The laser light is harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.
- Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- These Modulight products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.



Peak power and wavelength are for safety analysis only, not to present device performance.

Liability note

This document is sole property of Modulight, Inc. No part of this document may be copied without written acceptance of Modulight, Inc. All statements related to the products herein are believed to be reliable and accurate. However, the accuracy is not guaranteed and no responsibility is assumed for any inaccuracies or omissions. Modulight, Inc. reserves the right to make changes in the specifications at any time without prior notice.